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EXAMINER	
MEROUAN, ABDERRAHIM	

ART UNIT	PAPER NUMBER
2628	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,901	PETERSON, PERRY	
	Examiner	Art Unit	
	ABDERRAHIM MEROUAN	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2005* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/12/2007;09/1/2006*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-11, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Wolfram (U.S Patent 4809202) hereinafter referred as Wolfram, in view of Kevin Sahr et al (NPL: Geodesic Discrete Global Grid Systems) hereinafter referred as Sahr.

3. As per claim 1, Wolfram discloses: A method for storing two-dimensional spatially organized data in one- dimensional space on a computer storage medium by mapping the attributes of continuous state planar space to a multi-resolutional tessellation of close-packed uniform cells (Wolfram, Column 8 , lines 44-52, Column 2, lines 35-38, and Column 2, lines 3-5),

Wolfram doesn't disclose: each cell being uniquely identified with a sequential number whereas the number includes the identification of a parent cell, the parent cell encompassing a cluster of

child cells in a spatial hierarchy of specific order thereby identification of neighbour cells and child cells comprising the requirements:

i). spatial attributes are assigned to a parent cell, whose centroid represents its location and the voronoi region created by the boundary with adjacent parent centroids forming the closed area for which the properties of the cell are represented;

ii). a parent cell for which the centroid location is not a centroid location for any lower resolution cells defines the location of a single new child cell of the next highest resolution; alternatively,

iii). a parent cell for which its centroid location is also a centroid location for any lower resolution cells defines the location of a single new child cell of the next highest resolution and multiple new child cells of the next highest resolution, one located at each of the vertices of the parent's boundary edge.

whereby during initial conditions, a parent cell will be assigned a general hexagon shape or the shape of the plane for which it represents, with a starting centroid location that can be considered the planar origin.

However, Sahr discloses: each cell being uniquely identified with a sequential number whereas the number includes the identification of a parent cell, the parent cell encompassing a cluster of child cells in a spatial hierarchy of specific order thereby identification of neighbour cells and child cells (Sahr, Page 122, "Discrete Global system", lines 15-24, and Figure 1)comprising the requirements:

i). spatial attributes are assigned to a parent cell, whose centroid represents its location and the voronoi region created by the boundary with adjacent parent centroids forming the closed area

for which the properties of the cell are represented (Sahr, Page 121, "Discrete Global Grid", lines 6-13);

ii). a parent cell for which the centroid location is not a centroid location for any lower resolution cells defines the location of a single new child cell of the next highest resolution; alternatively (Sahr, Page 122, "Discrete Global Grid System", Paragraph [0002], lines 4-15)

iii). a parent cell for which its centroid location is also a centroid location for any lower resolution cells defines the location of a single new child cell of the next highest resolution and multiple new child cells of the next highest resolution (Sahr, Page 122, "Discrete Global Grid System", Paragraph [0002], lines 4-9), one located at each of the vertices of the parent's boundary edge (Sahr, Page 122, "Discrete Global Grid System", Paragraph [0004], lines 18-21) whereby during initial conditions, a parent cell will be assigned a general hexagon shape or the shape of the plane for which it represents, with a starting centroid location that can be considered the planar origin (Sahr, Page 129, "Transformation", Paragraph [0005], lines 1-13, "Sadournay et al. ……").

It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to incorporate the teachings of Sahr into the process taught by Wolfram, because through such incorporation would provide a detailed description of a discrete global grid systems

4. As per claim 2, Sahr discloses: A method, wherein the numbers at each resolution are clustered by parent and ordered according to a simple sequence or selected from the group: the z-curve, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering (Sahr, Page 127, right column, lines 27-33, "Known as Generalized Balanced Ternary…").

5. As per claim 3, Sahr discloses: A method, wherein the cell shapes and sections of cells on the plane can be modified by including or excluding, bending, joining, stretching, rotating, scaling and translation ordering (Sahr, Page 132, right column, lines 1-12, "In particular, we feel…")..

6. As per claim 4, Sahr discloses: A method, wherein the hierarchal indexing can be modified by adding or deleting levels or introducing new unique index values.(Wolfram, Column 7, lines 19-27)

7. As per claim 5, Sahr discloses: A method according to claim 1 wherein a cell may be introduced at any unique location and specific resolution whereas its ordering precedence superceding its neighbors and its behaviors are considered as a parent cell for which its centroid location is also a centroid location for lower resolution cells (Sahr, Page 122, left column , Discrete Global Grid System, lines 1-15, " A discrete global grid…").

8. As per claim 7, Sahr discloses: A discrete global grid system wherein spatially organized data, as a multi-resolutional tessellation of close-packed uniform cells, is stored as a one-dimensional georeference (Sahr, Page 122, left column , Discrete Global Grid System, lines 1-15, " A discrete global grid…") having had each two-dimensional cell projected from the faces of a platonic solid to a geodesic spheroid (Sahr, Page 123, Figure 2")., each spatial cell being uniquely identified with a sequential number, whereas the number includes the identification of a parent cell, the parent cell encompassing a cluster of child cells in a spatial hierarchy of

specific order thereby identification of neighbour cells and child cells (Sahr, Page 122, left column , Discrete Global Grid System, lines 16-30, " Kimerling et al. .....").

9. As per claim 8, arguments used to reject claim 2, are the same arguments used to reject claim 8.

10. As per claim 9, arguments used to reject claim 3, are the same arguments used to reject claim 9.

11. As per claim 10, arguments used to reject claim 4, are the same arguments used to reject claim 10.

12. As per claim 11, arguments used to reject claim 5, are the same arguments used to reject claim 11.

13. As per claim 14, Sahr discloses: A system, wherein the system includes software instructions that mathematically convert, georeference and integrate spatial data, raster images, topological georeferenced vectors to a gridded close-packed cell reference for storage in a database or digital file (Sahr, Page 121, right column , lines 6-22, " Regular DGGs...")

14. As per claim 15, Sahr discloses: A system, wherein the system includes instructions which returns to a computer visualization device a representation of the spatially organized data associated with a spatial area and range of resolutions in the form of a whole or partial rendered image of the geodesic globe (Sahr, Page 122, right column , lines 1-9, " Discrete Global Grid...")

15. As per claim 16, Sahr discloses: A system, wherein the system includes instructions that allow data referenced to the close-packed cell grid to be advertised, shared and transmitted over a network in anyone of: a complete file transfer, a progressively transmitted transfer and a continuous state up dateable transfer (Sahr, Page 127, left column , lines 27-38, " Studies by GIS researchers…")

16. As per claim 17, Sahr discloses: A system, wherein the system includes instructions that identify on-line data referenced to a cell location as a result of a search query, displaying at an automated or manually set resolution, a pictographic symbol at the cell location on the image of the globe which further instructions provide a means to select this symbol with a cursor, activating further software instructions (Sahr, Page 122, right column, lines 1-9, " Discrete Global…")

17. As per claim 18, Sahr discloses: A system, wherein the overlapping gridded data structure provides a framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion (Sahr, Page 127, left column , lines 27-36, " Studies by GIS…").

18. As per claim 19, Sahr discloses: A system, further allowing the spatial addressing and ordering to be used as a mesh or grid for the construction of stochastic and deterministic simulation of dynamic earth events (Sahr, Page 121, left column, lines 17-21, " Application often use…").whereas the system is arranged such that users can access on-demand in a peer-to-

peer environment a multitude of temporal geospatial data at each cell (Sahr, Page 127, left column , lines 27-36, " Studies by GIS…").and arranged such that this spatial data can be extracted and utilized in custom defined storage, routing and transformation routines and formulation (Sahr, Page 123, left column , lines 37-39, " Geodesic DGGSs have…", and right column, lines 1-20,"store raster… ")..

19. As per claim 20, Sahr discloses: A system, whereas the transformation routines include finite I difference methods (Sahr, Page 129, right column , lines 14-217, " They can adjusted the grid…").

20. As per claim 21, Sahr discloses: A system, whereas the transformations routines include cellular automata (Sahr, Page 127, left column , lines 20-26, " A recent texbook…").

21. Claims 6, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Wolfram (U.S Patent 4809202) hereinafter referred as Wolfram, in view of Kevin Sahr et al (NPL: Geodesic Discrete Global Grid Systems) hereinafter referred as Sahr, and further in view of Brueckner et al. (USPG-PUB 2002/0069018 A1) hereinafter referred as Brueckner.

22. As per claim 6, Wolfram in view of Sahr discloses: A method according to claim 1. Wolfram in view of Sahr doesn't disclose: wherein two or more cells may be introduced at any unique locations and specific resolution and wherein the boundary of two or three of the new cells share vertices, such vertices define the location of new child cells and the child cells shall

be uniquely indexed with reference to its three shared parents, and the behavior of these child cells are considered as a parent cell for which their centroid location is not a centroid location for any lower resolution cells .However, Brueckner discloses: wherein two or more cells may be introduced at any unique locations and specific resolution and wherein the boundary of two or three of the new cells share vertices, such vertices define the location of new child cells and the child cells shall be uniquely indexed with reference to its three shared parents (Brueckner, Page 15, Paragraph[0241], and Figure 25), and the behavior of these child cells are considered as a parent cell for which their centroid location is not a centroid location for any lower resolution cells (Brueckner, Page 16, Paragraph[0261], lines 6-13, and Figure 35).
It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to incorporate the teachings of Brueckner into the process taught by Wolfram in view of Sahr, because through such incorporation would provide the resolution at each location of the cells.

23. As per claim 12, arguments used to reject claim 6, are the same arguments used to reject claim 12.

24. As per claim 13, Sahr discloses: A system, where the shape, orientation and projection conforms to the Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid (Sahr, Page 128, left column , lines 35-38, " Figure 11 illustrates...") and the division of the icosahedron surface begins with the introduction of 12 points, one on each icosahedron vertex, resulting in pentagonal shaped voronoi regions with shared cell vertices located at the center of the icosahedron faces (Sahr, Page 125, left column , lines 9-13, " Wickman et al. .....") , further

defining 20 second generation hexagonal cells at each of these shared vertices and 12 second generation pentagonal cells each at the icosahedron's vertices (Sahr, Page 125, left column , lines 9-19, " Wickman et al. .....").

Conclusion

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is (571)270-5254. The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abderrahim Merouan/
Examiner, Art Unit 2628

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2628